

Roman Fort Construction: The Benefits of Standardization

By: Dane Rowles

Roman Fort Construction: The Benefits of Standardization

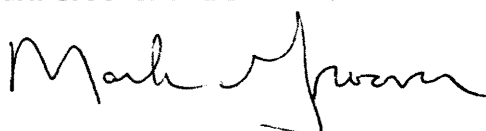
An Honors Thesis (HONRS 499)

By

Dane Rowles

Thesis Advisors

Dr. Mark Groover and Dr. Christine Shea

A handwritten signature in black ink, appearing to read "Mark Groover". The signature is fluid and cursive, with the first name "Mark" being more prominent than the last name "Groover".

**Ball State University
Muncie, Indiana**

June 2011

Expected Date of Graduation

July 2011

Special
Underground
Thesis
Project
of
the
University
of
the
South
Alabama

Abstract

Roman forts have been studied in both archaeology and history for many years. Standardization has often been mentioned as a tool of the Roman army and also one of its greatest strengths. In this study, the key aspects of three Roman fort designs have been identified and analyzed with regard to their strategic, logistical, and spatial significance. In addition, the possible ramifications of these designs upon later fort building in the United States during the late 18th century were also considered in addition to the analysis that was performed on the Roman fort designs.

Acknowledgements

I would like to thank both Dr. Mark Groover and Dr. Christine Shea, my thesis advisors, for all of their guidance and encouragement throughout this long and sometimes arduous process. This project would not have been completed without them.

There have been a great many excavations conducted on the sites of Roman forts.

Many records exist regarding the structure of those forts. Furthermore, it is agreed upon by many scholars that there was some degree of standard planning which decided how a fort was to be constructed and what elements were to be included as well as where buildings were to be placed. Therefore, I intend to present the layouts of three such forts and identify the common elements which all three share and examine these elements with regard to their benefits and also their potential significance. Each of these forts is located in the United Kingdom for the purpose of this study so that all site reports about Roman forts that will be utilized may be in English rather than another major European language. Lastly, I will examine the influence that Roman fort construction had on several American forts in the post-American Revolution period in a small analysis section, and all Roman fort plans will be included in an appendix section.

As we begin, it is important to note the definition of standardization which will be utilized. No two forts are ever exactly alike. However, a great many forts share the same design elements and layout even if they are not necessarily the same size. Also, it is important to note the kind of forts which are included in this study. The Roman forts which I have selected are not what would be termed "auxiliary forts" in which excess men and supplies were to be stationed and stored. Auxiliary forts were most often associated with the main garrison forts which were more self-sufficient.

The three forts which will be used in this study are those at Hod Hill in Dorset, Fendoch in Scotland, and Pen Llystyn in North Wales. Each of these forts has been excavated and their boundaries drawn up. Each was also visible from the sky by means of aerial photography. First

of all, let us begin with the fort at Hod Hill which was built in 43 AD. It was built upon a hillside at the intersection of two roads. Therefore it lacks the average fortifications on two sides which is made up for by its placement on this hill which is steep on the north and west sides of the fort. The structures at Fendoch were constructed around 82 or 83 AD during the campaigns of Agricola, and the fort and structures at Pen Llystyn were built around late 78 AD during the same campaigns (Wilson, 34).

<u>Characteristics Shared by Roman Forts</u>			
	Hod Hill	Fendoch	Pen Llystyn
Central <i>Principia</i>	X	X	X
Rectangular Shape		X	
Square Shape	X		X
Timber Ramparts	X	X	
Gravel and Turf Ramparts			X
Two “V” Shaped Trenches		X	X
Two “V” Shaped Trenches and “Punic” Trench	X		
Central Location of Main Buildings (i.e.- granary, hospital, and commandant’s house)	X	X	X
Orientation Towards the Ordinal Directions		X	X
Ten Ward Hospital		X	X
Granary Positioned Opposite of the Commandant’s House	X	X	X

Essentially, the main buildings which are to be found in each of these forts include the principia or headquarters, the commandant’s house, granaries, the hospital, and barracks. The first thing which was apparent was the position of the principia. In each fort, it is positioned in

the center of the entire compound, and it houses the administration offices for the entire fort as well as a shrine, a storage space, a well, and a dais for the commanding officer. Each principia laid parallel to and along side of the *via principia* which is the main road in each fort. *Via principia* simply means the “principle road”. This indicates its importance within the functioning of a fort:

As far as the shape of an average fort, it seemed that each fort was constructed in a rectangular or square shape. Each ranged from 400-500 feet on its longest side, and each side contained a gate with the exception of the Hod Hill fort which had no gates on each side that was bordered by the sides of the hill. Ramparts surrounded each fort as well and these were constructed from various materials. At Hod Hill and Fendoch they were made from timber whereas at Pen Llystyn, they were constructed of gravel and turf. However, at all three locations, towers and gates were constructed mostly of wood. This is evident in the archaeology of each site even though some of them had been demolished. For example, in a fort which is merely deserted, the ground where a post was once located would be discolored because of the decomposition of wood and the subsequent settling of decomposed remains. At Hod hill, the locations of all buildings were easily seen, because all structures including the ramparts were made with a framework of posts. Gate posts especially, were still easily seen because they were placed in the ground by digging a hole in the soil or carving a space into the base rock, placing the post in by means of a derrick or pulley, and filling in the hole with gravel or soil (Wilson, 23). This gravel still remains in many postholes.

Another aspect of defense that each fort had in common was the trenches which surrounded each fort. Each rampart, as mentioned before, was built of either wood or earth and could also be made of stone. If it was constructed of wood, earth could be pushed up behind it to create a walkway, and if it was made of earth, a timber walkway was constructed on top of it. These ramparts would have an average height of 12 feet or so. The ditches were then dug in front of these ramparts. This added an extra amount of height to Roman defenses when approached from the outside. These trenches were made even harder to navigate because they were dug in steep "V" shapes when viewed from the side. Additional trenches were dug a little farther away. In this sample, both Fendoch and Pen Llystyn had two whereas Hod Hill had three.

Speaking of the Hod Hill Fort specifically, excavations of the three trenches showed that its ditches were more complex than those which were dug around the other two forts. At Hod Hill, the outermost ditch was five feet deep with the side closer to the camp being a more sloped and the one farthest away being almost sheer. The other two trenches were dug in almost the same pattern as the other two forts. One of these was just an extra precaution. The truly ingenious aspect of this design is the gently sloping nature of the outermost trench which is also known to most Roman military scholars as a "Punic" trench (Wilson, 22). This trench was located just within missile range of the fort. Therefore, an intruder would be able to navigate the first trench fairly well as he was peppered with missile fire. Should he find it too hard to pass the next two trenches which slowed him down more and allowed more time for defenders to fire on him, he would then have the option of turning back. However, while one side of the outer trench is more easily negotiable, the sheer face of the far side would then trap

a hostile intruder and allow more time for the Roman defenders to shoot at his back while he made his escape (Wilson, 23).

As far as the general layout of the forts, not only was the *principia* in the center the commandant's house was usually adjacent and near these two buildings were the granaries and the hospitals. Farthest from the center of the camp were the barracks. The only exception to this is found at Hod Hill because the granary is located the closest to the fortifications. The reason for the location of the *principia* seems obvious. For couriers as well as the average soldier, the headquarters building would be a regular place of interest and its location would need to be known. This building served several purposes such as being the place where all commands were issued, notices were put up, pay was handed out, and also where punishment was chosen for crimes. This was also the building at which all soldiers would meet in order to hear an address from their commanding officers. Should there ever be an emergency at a fort when a soldier is not familiar with it or has not been there before, the layout would remain the same as the fort which he was trained at, and he would have been able to find his post immediately (Alcock, 52). A commandant would be able to send a message from one fort to another, and the messenger would know exactly where to go. From the standpoint of defense, the *principia* would need to be in the middle as it would be equidistant from all entrances to the fort. If a fort was besieged, then the commandant would be able to use this building as his continual base of operations.

Most *principia* would have included a storage space, shrine, courtyard and also a well. At Hod Hill, this design of the *principia* remains relatively the same. In the evidence presented

by Wilson, it is not stated where the water source for the fort is located. However, it is very likely that the water source was located elsewhere due to the previous occupation by local people prior to the Roman influx, and the Roman's felt the need to still adhere to their own fort plans. However, it is also equally as likely that the location of the well may have been taken as a given in the report, and the mere fact that the location of the *principia* in an off-centered position is indicative of where the well should have been dug. Otherwise, the layout shows a regular layout of a *principia* with both the courtyard and the rooms in the rear for administrative purposes. One of these probably contained the shrine and an area for storage. At both Fendoch and Pen Llystyn the layouts are basically the same, and the main difference is the layout of the courtyard. They appear to have been centered with the administrative offices located in the most northeastern portions of each building. The unusual aspect of this design lies within Fendoch's *principia* which has two on additional long rooms/hallways on both its northwest and southeast sides. The archaeological evidence suggests that there were the same amount of posts/columns which supported the roofs of both the Fendoch and Pen Llystyn *principia*, and according to the map scale, each building was the same size. This suggests that the courtyard at Fendoch was compressed during construction in order to allow for more storage spaces to be installed on either side. Returning to the fact that the well within a fort was most likely located in the *principia*, this says something about the landscape which the Romans would have chosen to place a fort.

Naturally, they would have chosen a defensible position or one of strategic significance along a main road. Pat Southern notes in his book, *The Roman Army: A social and Institutional History*, that "Roman forts were placed in areas with access to water and food, and on major

routes providing for rapid communications and troop movements.” Therefore, there are many hill forts such as the one on Hod Hill. One particular thing about the English forts is that they may have been occupied before, either prehistorically or at least in the time of pre-Roman occupation. The Romans, in some cases, would have simply had to take over a pre-existing hill fort and improve it. These places that were chosen or taken would also have a ready supply of fresh water. Also, large hills were good choices because their steep sides made them more defensible, and if the sides were both high and steep enough, then time and energy could be saved by not building a wall all the way around.

Let us go on to speak of the commandant’s house. In each fort, the house was located either in a more westerly position with relation to the *principia* or easterly. At Hod Hill, the house was located on the westernmost side of the encampment beside the *principia*, and at Pen Llystyn, it is located north west of the *principia* near to the northwest gate. However, at Fendoch, it is located at the northeastern side of the encampment near a gate as well. This would beg the question as to why there would be a specific advantage or disadvantage to the placement of the commandant’s house. This especially comes into question when considering that both Fendoch and Pen Llystyn are very similar in their layout and are also from the same period and the same campaigns. It should be noted that the granary contained in each fort is placed on the opposite side of the compound from the commandant’s house. Considering the position of the commandant’s house nearer to the more defensible hillside at Hod Hill, it very well could be that the house would have been held as more important than the granary if walls were to be breached. This could be for several reasons. Considering the Roman way of war, the granary would have been the least of a defender’s worries if the walls were to have been

breached or a soldier from any period for that matter. Most often, the Romans were the ones to do all of the attacking, and most often, their rules of engagement were to strike first rather than hole up in a defensive structure as those of later medieval periods. This also explains the height of walls in Roman defenses as the Romans were very capable of building them much higher or building walls and fortifications out of stone rather than wood. The house may also have been a fallback point for troops if the walls were to be breached and the security of the *principia* compromised. There would have been supplies in the house as well more places to engage the enemy in a more confined space in a last ditch effort at defense. At the very least, it could have been used as an alternative headquarters.

As for the overall design of the commandant's house, the houses at all three forts share almost the same layout. Wilson does not speak of the materials which were used to construct each house, but his illustrations show similar characteristics. Rather than being constructed as a civilian villa in a long formation with several large, open rooms in the center for accepting visitors, each structure contains a central courtyard surrounded by columns and also many smaller rooms. This may also have been for defensive and utilitarian purposes. For example, if there were to be an intrusion into the fort, any hostile person would find it much harder to move throughout the house especially if the household slaves were charged with guarding the building. As mentioned before, fighting in a smaller space could be beneficial as numbers would play a smaller role. Additionally, the commandant would not have the need to entertain or welcome guests. After all, what would be the point of having a long, elegant entryway in a military establishment?

Another design element to note is that all of the barracks were on the outskirts of all three camps. The granary, the commandant's house, and the hospital are more central which begs the question, "Why would they be surrounded by the barracks?" Naturally, all three of these structures are very important. Therefore they must be protected, and what better way than to surround them with soldiers? At Hod Hill, there were no barracks located on or near the two sides which bordered the steep sides of the hill. This means that it is likely that the Romans did not expect an attack from that direction. If the walls were breached at any time, they would still have access to their own hospital and food supply, and the commandant would still have control of his headquarters. At Fendoch, the northeast gate is adjacent to two separate barracks, and the same can be said of the southwest gate. As for the northwest and southeast gates, since they were located much closer to the southeast, it's safe to assume that soldiers could be mustered to these gates if they were to be breached. The fort at Pen Llystyn is designed much the same way. At this point it is still unclear as to the reasoning behind the positioning of the granaries at the Hod Hill fort. It seems as if all food stores would be lost if the walls were to be breached in some form of assault.

Another aspect of the barracks that should be addressed is their construction and design. A typical Roman barracks was constructed from the base up from brick. This base was typically around two and a half feet tall. The next portion of the walls was supported by a timber framework which contained wattle and daub framework in between. The construction of the foundation is evident in the remnants that were left when a fort was torn down. Most barracks were also "L" shaped and contained a series of individual rooms which extended into an enlarged room on the end which was reserved for officers. There were ten individual rooms

which consisted of both a front and a back room. Four men were able to fit into the back portion of each room and stored their personal items and weapons in the front portion of this room (Wilson, 18). Most often these rooms would have had no heating. Outside of these rooms, there would have been a colonnade which supported the roof. At Hod Hill, all of the barracks seems to follow this general formula for construction. Each is in the standard "L" shape and contains around the same number of rooms in most of the structures. A detail to note is the orientation of the officers' quarters to the main roads. Each is directly adjacent. One possible explanation for this is that if a person such as a courier from another fort or simply someone delivering orders from headquarters would need to find a particular officer, he would simply need to follow one of the main streets to find him rather than wandering throughout all parts of the camp and losing time unnecessarily. Also, in the event of a breach occurring in the fort's defenses, officers would have first access to the main roads to either get to headquarters or receive orders from that building. At Fendoch, all of the barracks seemed to be laid out in a much more organized manner than at Hod Hill, and each were oriented lengthwise towards the northeast and the southwest. While it was mentioned earlier that

The detail which was perplexing about the orientation of the latter two forts was that their four gates each faced the ordinal directions rather than the cardinal. A possible reason for this would be the need for soldiers to avoid facing either east or west in battle. If they were made to face either one of those directions at the right time of day, then defenders would be blinded by the sun. By orienting the gates another direction, this was avoided. As for the Hod Hill fort, its design had to conform to the terrain on which it was built. Therefore, its gates opened on two sides to the cardinal directions.

Speaking further of the orientation of the latter two forts, Woolliscroft and Hoffmann state that forts are typically divided unevenly by the *via principia* which left two gates closer to one end than the other. They also go on to state that the smaller of these two sections would often be facing the direction that the Romans believed the enemy would most likely launch an assault from. Therefore, it would be logical to assume the more compact area of the fort was positioned towards an enemy so that soldiers could be more easily mustered in order to defend three gates at one time with plenty of room to fall back in the event of a tactical retreat. In addition, it appears that the trenches at Fendoch are much more prevalent on the side which is less compact. These could have possibly been constructed for the purpose of extra fortification and also in order to gain more time to muster soldiers to the far end of the complex during an attack launched from behind. So building on the hypothesis earlier that the latter two forts were oriented towards the ordinal directions so that the sun wouldn't get in the soldiers' eyes, it would seem that these forts were built so as to head off assaults from their south sides.

This design aspect can be seen within the dimensions of the Hod Hill fort, but with the restrictions of the terrain, it is nowhere nearly as pronounced as the other two forts. However, it can be seen that within Hod Hill, the *via principia* is just a little over half way down, and lies just a little closer to the easternmost ramparts. In addition, each barracks seems to be crowding its respective gate. Therefore, it must have been easier to muster soldiers in times of emergency. Also, this would mean that the most likely direction of an assault would be the east and south, because both the north and west sides are very well fortified by the sides of the hill on which the fort rests.

As far as building designs go, the hospitals at the latter two forts have a distinct shape and organization, whereas the hospital at Hod Hill does not seem to share the same level of organization. The first thing which is apparent about the layouts of the hospitals at Fendoch and Pen Llystyn is that they are each very long buildings. Fendoch is about 100 feet long and Pen Llystyn is just over. The second is that both of these forts can be divided into ten smaller units within them which are most likely wards. This is evident in the archaeology, but also in the fact that the number of wards would then correspond to the number of cohorts which would be in the fort. A cohort is a division of the Roman army. The smallest part of a Roman legion was the *centuria* or century. This unit would consist of 80 men. Six centuries made up a cohort, and ten cohorts made up a legion, and it was precisely this amount which was to be housed at each fort. Therefore, each cohort would have its own ward in the fort's hospital. This would have added to the organization of the fort and also its efficiency especially in times of crisis. If soldiers were getting wounded, there would be a place for them to go in order to receive treatment, and it would be less likely for confusion to result in delays or loss of life. Furthermore, if a soldier were injured badly enough to be left unconscious for any length of time, his identity or at least his cohort would still be known and he would be able to be identified somewhat. Fendoch appears to have at least one more room with what seems to be a hallway in the middle. Pen Llystyn appears to have an external colonnade which runs parallel to each ward externally.

The last structure to be examined is the granary. Each camp contained one granary which was always at the opposite side of the camp as the commandant's house. At Hod Hill, this structure was built on a raised platform made of posts which kept it up off the ground and

thereby much drier. Also, this slight elevation reduced the risk of vermin getting into the food stores. While most buildings would have been made with the post construction and sometimes wattle and daub, a granary would most likely have been made with wattle and daub at the very least in order to assure a food supply's safety in the event of wet weather. Furthermore, a granary may have been constructed with wooden planks for an even more waterproof seal between pieces of wood. This design is very much the same at both Fendoch and Pen Llystyn. A possible explanation for the position of the granary at each site could be the possibility that each fort expected supplies from a certain direction. Therefore, it would have been much easier to locate the granary at the gate a supply line would enter so that they would be able to simply unload all supplies quickly and efficiently in one place which was readily accessible. At Hod Hill, it would be logical simply because a supply line would obviously not try to come up the steep side of the hill on either the north or west sides.

Now having taken a small look into Roman fortifications in antiquity, it is time to delve into the ramifications that these ancient structures have had upon more modern fort design within the United States in the time period after the American Revolution. In this portion of the study, two forts will be examined through information gleaned from their respective site reports. These forts are Fort Southwest Point in Kingston, Tennessee and Fort Blount in Jackson County, Tennessee. Bear in mind that those engineers who would have designed these forts most likely were educated in a manner which utilized the classical languages which included teachings on classical cultures. Also, the periods in which both forts were designed and constructed coincided with the Age of Enlightenment in which studies of the classical arts were much encouraged and sought after. Therefore, it is commonly understood that these teachings

with particular emphasis on military tactics and fortifications influenced fort engineers of this period.

Beginning with Fort Blount, it was built in late 1792 or early 1793 and named after the governor of the Southwest Territory, William Blount. It had a strategic placement along the Cumberland River at a natural ford and was utilized by settlers who were moving west. At this point in time, the fort was a necessity as the sheer volume of settlers moving west was placing more and more strain on the relations of the locals with the Native Americans in the immediate area.

Based on the archaeological evidence, it is believed that the fort had dimensions of 120 feet by 90 feet, and there appeared to be three structures at the site. These consisted of a smokehouse, a blockhouse, and what appears to be a kitchen. There was also an open space which was determined to be at the northern end of the camp and also a gate at the southern end. Let us begin our comparison with the construction of structures at the site. As with Roman buildings, each structure at Fort Blount was made using a post structure. The main difference is that these buildings each had a limestone in addition to this structure. While Romans would have utilized foundations, they were not always necessary in what were intended to be temporary structures. Furthermore, posts were used in the construction of the outer wall which is evident in the remaining holes which were found in the excavation. Also, the course of the outer wall was easily determined by a discoloration in the vegetation according to Smith. Therefore, it is likely that a trench was dug in order to accommodate the posts and was filled in only to be left later. It is this aspect that a great many American forts

were influenced by the fortification style of the Romans who would do very much the same thing often digging specific slots in order to accommodate the base of each post. These posts could then be pulled up using pulleys. At the original site, it could only be speculated that much ground would have been pushed up in order to create a rampart or else it would have been likely that large posts would have been placed and braces driven into them across the back in order to stabilize them. In addition, there would have been additional posts driven into the ground near the base of this wall in order to fill up the gaps between the walls. This would have also created places for soldiers to place their muskets in the event of an attack in order to steady their shots.

The main reason that Fort Blount was selected for this study is that it had some distinctive qualities which were reminiscent of a Roman fortified camp mixed with a fort. Ordinarily, forts would either have the main purpose of garrisoning soldiers and holding supplies leading to subcategories of forts which would specialize in one or the other. Also, there were much smaller scale fortified camps which were made when traveling legions would need to stop for the night or make a temporary camp. Much in the vein of a full-scale fort, trenches were dug around the perimeter in order to deter intruders and also ramparts of a sort were constructed for much the same reason. There would have been an open area at one portion of the encampment which would have been used as an area to place tents which in and another which would have been designated as an area for the commandant to camp. Of course, both the "walls" and the ditches would have been constructed on a much smaller scale. At times, the ramparts may not have been more than sharpened stick which were driven into the ground, and the ditches would have been much shallower. In order to compensate for their

depth, sharpened sticks or spiked metal pieces may have been placed at their base. This being said, Fort Blount is very reminiscent of this fortified design. Considering that the fort was originally intended as a defensible position in order to encourage settlers to move west, it is likely that more permanent buildings for the soldiers were not necessary and smaller dimensions for the fort were more efficient.

So when comparing Ft. Blount to a fortified Roman camp, the first thing which is obvious is the open encampment at one side. Most often this was used seasonally unless necessity dictated otherwise. In both cases, soldiers would have slept in tents in this area of the encampment which was also where they would have taken their meals and also cooked them at times. The second point that is similar is the central location of the headquarters. This is also the point at which Ft. Blount mixes the Roman fort and fortified camp together. As mentioned before, a fort would have had the central *principia* building where all important decisions were made and the center of command was located. At the same place in a fortified camp there would have been a temporary building or tent. Being what seems to be a fortified camp, Ft. Blount appears to mix the two designs. Strategically, this is a sound decision. While Romans had sharpened stakes as defenses at night, they were also more vulnerable if their defenses were breached. However, if there was more time to make a permanent structure at the center of the camp, then soldiers from the 1790's would have had an advantageous fallback point at which to rally and stage a defensive plan. This would also have been the place where cannons and some munitions may have been housed. Given these factors and the seemingly small-scale nature of Ft. Blount, it seems a logical conclusion to say that those who designed

smaller forts during the period were influenced in some way by the construction of Roman fortified camps.

Moving on to Fort Southwest Point, it was located in the area of what is now Kinston, Tennessee. Furthermore, it was an important place for both the United States government and the Cherokee. This is because the fort provided a point at which the two groups could interact. It was also used to house soldiers from the time of its construction in 1797 until the year 1811. Beginning with a simple blockhouse, the fort was expanded later into a full scale fort.

According to archaeological evidence provided in the Brook et alia report, the dimensions of the fort were around 300 feet by 170 feet. The buildings which are accounted for in the Bunch report include four corner blockhouses, three privies, an officers' quarters and administrative offices, four barracks, an unknown structure, a distribution center, and a supply building. These are the only structures at the site which have been identified from this time thus all conclusions shall be drawn from what structures are known at present.

When examining the map of the site which was included in the Brooks et al. report which is included later, it is clear that some buildings have yet to be identified. Also, it is made clear that many of the lines which have been drawn to represent the outer walls of the fort are mostly from conjecture. However, to be fair, these conjectures at the moment with the amount of information and archaeological resources on the subject appear to be sound. At first, it is easily seen that this fort lacks one of the most standard elements of all of the forts in this study so far. The central command area is located in the southwestern part of the camp. This can be attributed to the parade grounds in the middle. This also highlights an adherence

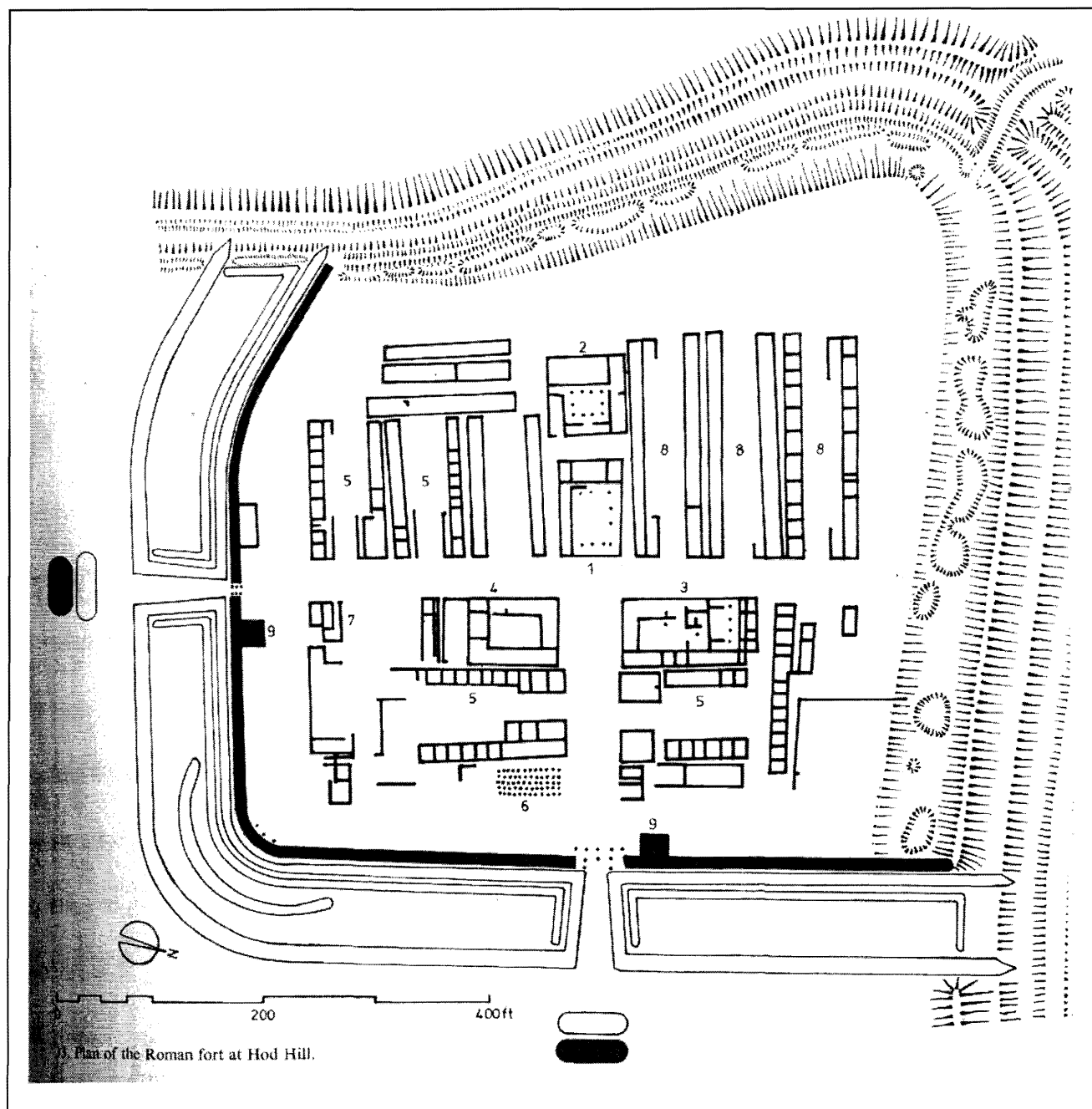
to later styles of military strategy in which the fighting forces are contained within a more defensive structure and subsequently will train within it rather than both inside and outside such as a Roman fort which would have been oriented to more of an offensive strategy in which troops would not hole up within a fort instead of fighting out in the open if at all possible. However, there are four areas in which the designers of this fort intentionally or not integrated elements of Roman fortification. These are seen in the position of two blockhouses, the shaping of the landscape to fill needs for the fort, the orientation of the fort, and the location of the barracks within the fort.

Beginning with the positioning of the northernmost and the easternmost blockhouses we see two external corner bastion structures. As mentioned before, these were used by the Romans in order to deter would-be besiegers by widening a defender's view and firing range. This concept easily translates to the time period of the fort. When selecting the area for the fort, it must have been taken into consideration that the river nearby could be used as a form of fortification. Also, the fort would have been located on a raised area much the way that Romans would have selected a place to build. The detail which really puts this idea on display however is the altering of the landscape on the south corner of the fort. The excavation in 1984 revealed that at the base of the palisade trenches were stone foundations. These would have raised up this area of the fort in order to make a level surface on which to build the fortifications. This would have been common fare in the ancient world. It was very common for the Romans to have altered the environment often creating foundations in just such a way as to elongate their building surface and thereby increase the dimensions of the fort to the desired specifications. Furthermore, the Romans were taking the lay of the land into account

because of the orientation of the fort. Granted, the fort was already beside a river and was already semi-fortified in that aspect, but it gained a further advantage being oriented to the ordinal directions as mentioned earlier with Roman forts. Lastly, the locations of the barracks in the fort are also reminiscent of Roman strategy. Having all of the buildings housing personnel near the walls would have been strategic if the walls would have ever been breached. Just as at the Agricolan forts and the fort at Hod Hill, soldiers could have been mustered at any key area of defense in order to protect the fort in the event of a siege or a wall breach.

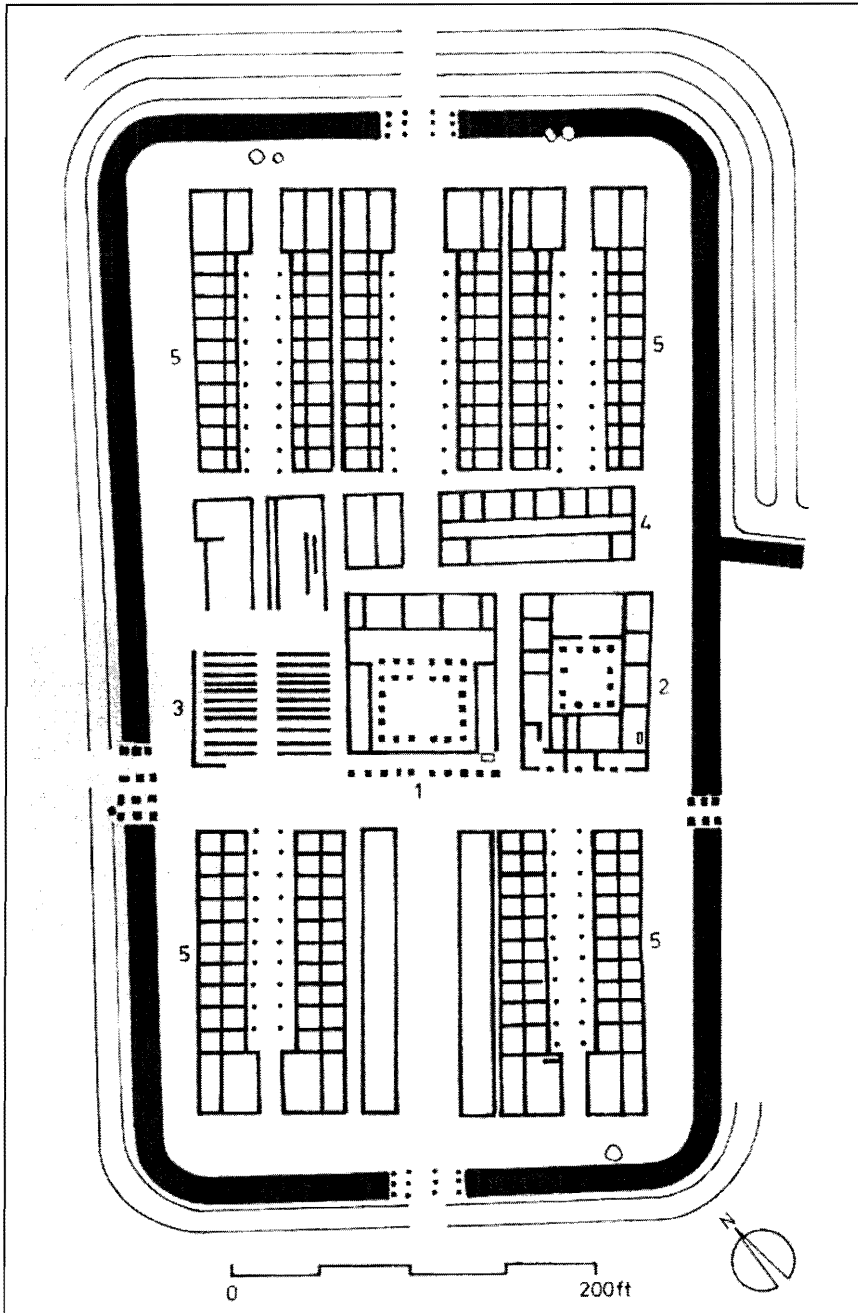
Finally, after seeing the layouts of these five forts and examining the key elements which all of them had in common, it is easy to see both the significance and benefits which these designs would have for the Roman army in the first three and in the latter two, what influence the Romans had on their standard design and planning. In this way, standard planning could be used to dictate the placement of buildings and the incorporation of these ideas into Roman fort construction and later American fort construction to the great benefit of both organization and defense.

Appendix: Illustration 1



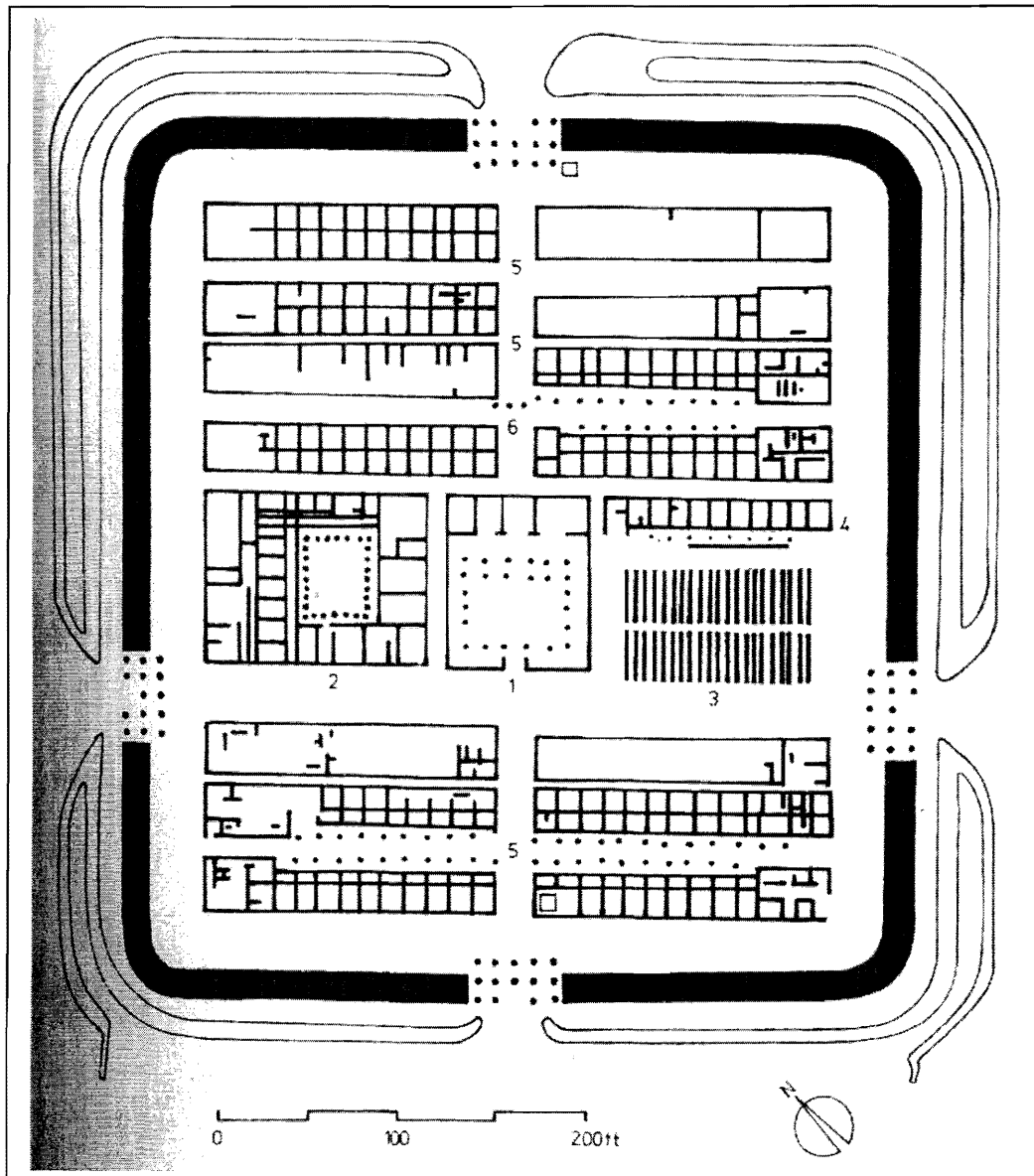
Hod Hill Roman Fort

1. Principia (Headquarters)
2. Commandant's House
3. Auxiliary Commandant's House
4. Hospital
5. Barracks
6. Granary
7. Latrines
8. Stables
9. Ramparts

Appendix: Illustration 2**Fendoch Roman Fort**

1. Principia
2. Commandant's House
3. Granaries
4. Hospital
5. Barracks

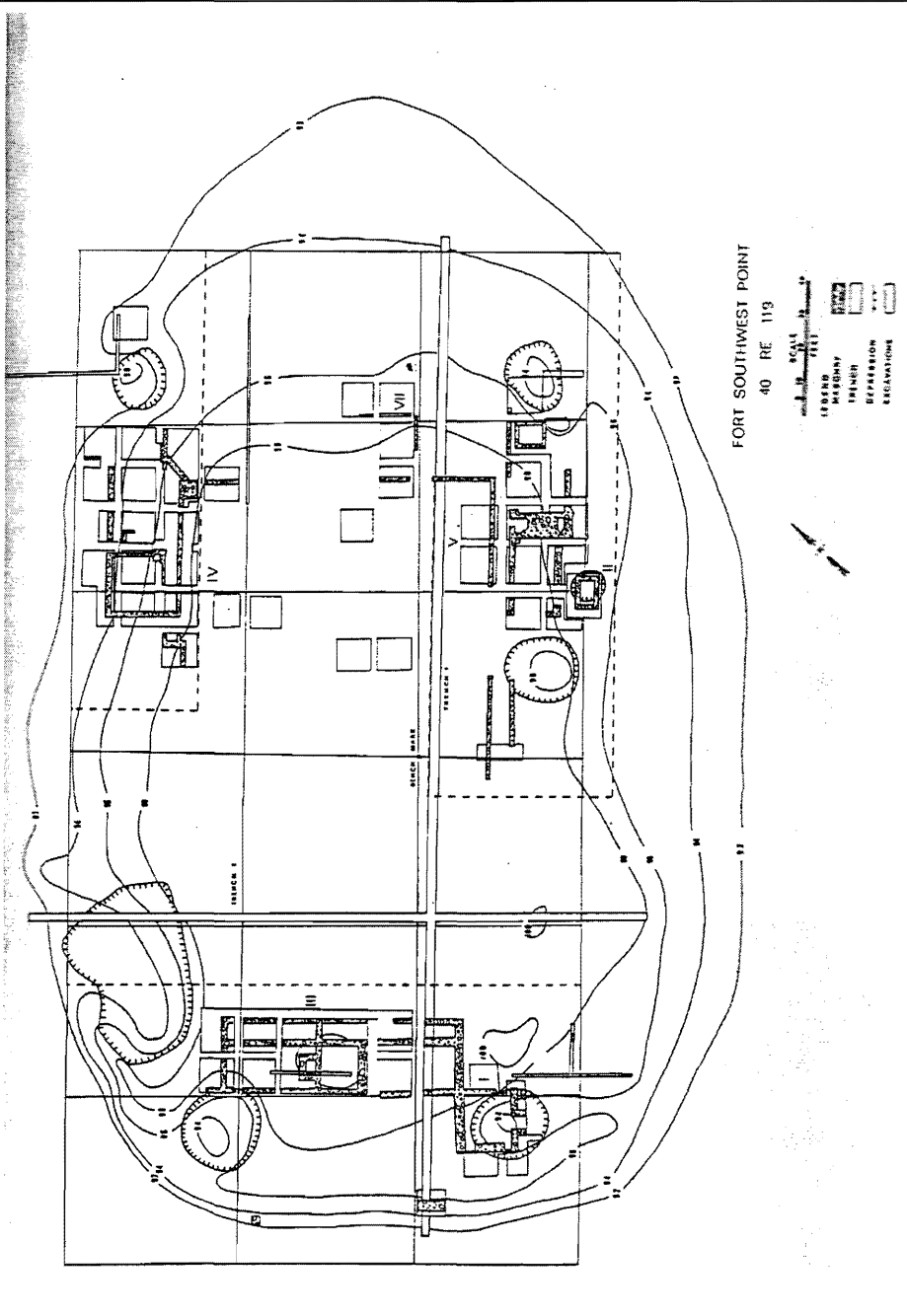
Appendix: Illustration 3



Pen Llystyn Roman Fort

1. Principia
2. Commandant's House
3. Granaries
4. Hospital
5. Barracks
6. Internal Gate

Appendix: Illustration 4



Fort Southwest Point

1. Corner Blockhouse
2. Privy
3. Officers' Quarters and Administrative Offices
4. Barracks
5. Barracks
6. Barracks
7. Unknown
8. Distribution Center
9. Privy
10. Corner Blockhouse
11. Blockhouse
12. Privy
13. Blockhouse
14. Barracks
15. Supply Building

Illustrations

Illustration 1 (Wilson)

Illustration 2 (Wilson)

Illustration 3 (Wilson)

Illustration 4 (Smith and Nance, 115)

Works Cited

Alcock, Joan

2006 Life in Roman Britain. Gloucestershire: Tempus Publishing Limited

Bunch, Robyn L. with Jenna T. Kuttruff, Fred M. Prouty, Steven D. Ruple, Andrea B. Shea, Kevin E. Smith, Samuel D. Smith, Susan M. Thurston, and Mary Beth D. Trubitt.

1993 Fort Southwest Point Archaeological Site, Kingston, Tennessee: Tennessee Department of Environment and Conservation, Division of Archaeology, Research Series No. 9

Smith, Samuel D. and Nance, Benjamin C.

2000 An Archaeological Interpretation of the Site of Fort Blount. Tennessee Department of Environment and Conservation, Division of Archaeology, Research Series No. 12

Southern, Pat

2006 The Roman Army: A Social & Institutional History. New York: Oxford University Press

Wilson, Roger

1980 Roman Forts: An Illustrated Introduction to the Garrison Posts of Roman Britain. London: Bergström + Boyle Books Limited

Wooliscroft, D.J. and B. Hoffman

2006 Rome's First Frontier: The Flavian Occupation of Northern Scotland. Gloucestershire: Tempus Publishing Unlimited